



## SPECIFICATION:: "ZERO RESISTANCE SURFBOARD"

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I am an independent and sole inventor with no federally sponsored research and development obligations.

The title of my invention, "Zero Resistance Surfboard" refers to the reduced resistance to "drag", creating a faster and better performing type of surfboard.

### BACKGROUND OF INVENTION:

By using a textured material applied to the bottom of sporting equipment used for surfing or "riding" ocean waves, I have produced a proto-type surfboard that has a measurable "lightness" of movement on the water, (decrease in drag). I have used common materials in a manner to produce a faster surfboard, and believe that no one else has thought of this. I am not aware of any surface water sports equipment that incorporates enhanced performance by use of textured materials.

### BRIEF SUMMARY OF THE INVENTION:

The sport of "surfing", or riding ocean waves is Hawaiian in origin, and has become a world recognized sport with both amateur and professional status. The size, shape, and composition of surfboards have evolved many variations that reflect the development of the sport over the past several decades. The common surfboard used today has a hardened foam core and is covered with a layer of casting resin that is sanded smooth to produce a slick surface on both top and bottom of the board. The rider maintains contact on top of the surfboard by rubbing a soft form of wax to produce a layer that forms a mild adhesion factor for both foot and body contact, and is a sticky or non-slippery area. It is commonly thought that the smoother the material is, that contacts the water, the faster the board will travel. However, naturalists and scientists have observed that a textured surface actually moves better through water, and an example and inspiration of which is the rough surface of the skin of a shark. The idea of increased performance by use of textured surface application is being incorporated in the hull design of racing yachts, and is now in use to enhance performance of U.S. Submarines. My area of interest is on the top of the water, and believe that my proto-type surfboard has a unique modification that produces an enhanced performance by use of the textured bottom that is in contact with surface water.

## DETAILED DESCRIPTION OF THE INVENTION:

I have applied a textured surface to the bottom of a standard 7' 6" triple fin surfboard, of a commonly used type, that is in use today. The textured surface consists of ¼" or smaller pieces of quartz (aquarium gravel) that were individually glued in a spacing similar to skin pores. The small stones were glued to hold them secure in place when the finishing casting resin would be poured. I then taped the entire edge of the surfboard with plastic masking tape that was lined with a one third diameter (of the masking tape) layer of household aluminum foil. This prevents the liquid resin from leaking over the edge (sticky tape stopping the flow at the lower edge that comes in contact with the resin) and the foil resists the hardened resin and will peel off the finished product, providing a simple raised edge mold that contains the poured resin until it sets.

To apply a liquid finishing layer of casting resin I placed the board upside down and set in a way that would allow small areas to be poured and allowed to harden. Like linking pancakes together, the hardened areas would help to contain the liquid resin as it hardened or "set". The position of the surfboard was shifted to create level areas to continue with the 'pancake' linking of areas partially encasing the texture producing stones.. The use of casting resin is to make the textured area more permanent and durable when put into use. I also used thin pre-formed acrylic strips (similar to spaghetti noodles) available at craft and art stores, to help hold the resin and provide a nice finished look until it set.

The area under the surfboard was lightly smoothed with a metal file to take the points off the small stones so as not to cut or scrape the handler or surfboard rider when in use. The edges were also finished by sanding, again just to make the surfboard nonabrasive for the user.

I then prepared a cover to keep the surfboard private for actual testing in the water. I did not want to attract attention to the textured surface, and have tried to maintain a low-profile. I was delighted with the crisp feel and movement of my little board in the water.

To quantify the improved effects of having a textured bottom on a surfboard I went to the mouth of the San Diego river in Ocean Beach, California, that is accessible to the public and is a local surf area. I used an empty Clorox bottle that I cut an opening into, to create a container that had a handle for a small diameter rope to tie to, and an opening I could drop weights into. I then took my covered board, a three

foot length of bamboo, some small stones and a twelve foot length of ¼" mountain climbing rope (no stretch) , a zip-lock sandwich baggie, and my Clorox container to set up a verification test. The river channel provided a consistent current for the surfboard to free float upon. I tied the rope to the leash attachment on the board, draped the rope over the bamboo pole that I held in my hand and then suspended the Clorox container that was tied to the other end of the rope with a few small stones in it. I added stones until the surf board became stationary ( no rope feeding out). I then emptied the container and placed those stones representing the weighted resistance of the textured side of the surfboard in the moving water into the zip-lock bag, and put them back into the container. I then inverted the surfboard (flipped it to the other side) and repeated the measurement to compare with the top side of the surfboard. This required more stones to achieve the point where the rope no longer fed out.

I took the Clorox bottle and its contents to my local grocery store and the manager allowed me to use the electronic digital scale to comparison weigh the container and the bagged rocks. It was a Spectra-Physics EAS equipped scale and had a current certification stamp as being approved by Kathleen Turner, Calif. State Controller of weights and measures. I was impressed with the results. The pound resistance of the surfboard on the textured side measured .36, and on the un-textured, or top side measured .74 lbs. I believe my proto-type surfboard has merit and hope to develop this idea into a finished product.